PALM BEACH COMMUNITY COLLEGE
Course Outline

Course Number and Title

BSC 2085: ANATOMY & PHYSIOLOGY I

Catalog Description

BSC 2085: An introductory course in the structure and functions of the human body. Topics include organization of the body, cell activities, early embryology, tissues and skin, as well as the skeletal, muscular and nervous systems.

Credit and Contact Hours

BSC 2085: 3-0-3

Transferability

No

Prerequisites

None

Co-requisites

BSC 2085L -

Textbook and/or Bibliography

BSC 1085: Fundamentals/Anatomy/Physiology
by R. Martini; 2nd Edition; 1992; Prentice-Hall, Inc.

BSC 1085L: Anatomy Coloring Book; by O. Kapit; 1993; Harper Collins Publishing
Lab Textbook/Anatomy-Physiology: Cat; by R. Donnersberger; 5th Edition; 1992; Heath, D.C. Company
Guide/Anatomy/Physio Lab; by R. Rust; 2nd Edition 1986; Southwest Education Enterprise

Course Core Objectives (for BSC 1085 & BSC 1085L)

The student should be able to:

1. Demonstrate a knowledge of root words which are applicable in Anatomy and Physiology.
2. Differentiate between body directions and body planes.
3. List the structural units of the body and distinguish between each.
4. Identify major cell organelles and inclusions and list functions of each organelle.
5. List the stages of mitosis in chronological order and identify the important events in each stage.
6. Distinguish between the four major types of tissues on the basis of structure, function and location.

7. Identify the structures and functions of the integumentary system.
8. Describe the structure of the skeletal system.
9. Explain the formation and maintenance of the skeletal system.
10. Explain the physiologic relationship of the skeletal system to life processes.
11. Describe the cellular composition of muscular tissue.
12. Describe the properties of muscle and its capabilities.
13. Explain the chemical components of muscles and their reactions in muscular contraction and relaxation.
14. Explain the principles of oxygen debt and heat production.
15. Describe types of muscle contractions.
16. Differentiate between muscle disorders.
17. Describe the structure of nervous tissue cells.
18. Describe the transmission of nerve impulses through nervous tissues.
19. List the major divisions of the nervous system and their respective components.
20. Describe how the nervous system impacts other body systems.
21. Relate the functions of nerve fibers to body functions.
22. Identify the components and functions of a reflex arc.
23. Distinguish between various reflex arcs and identify the specific parts of the nervous system concerned in their operation.
24. List the major divisions of the brain and indicate functions of each part.
25. Trace the flow of cerebrospinal fluid from its origin to its point of reabsorption.
26. Identify the cranial nerves by name, number, location, function and dysfunction.
27. Distinguish the major areas of the spinal cord in cross-section.
28. Relate spinal cord conduction pathways to somatic functions.
29. Contrast spinal nerves with cranial nerves.
30. Compare and contrast components of the autonomic nervous system.
31. Demonstrate skill in the use of the light microscope and give the major functions of each part.
32. Identify the major tissues of the body presented on Kodachrome or microscope slides.

33. Identify the bones of the body and their bone markings.

34. Identify the major muscles of the cat and know their origin, insertion and action.

35. Distinguish between major brain regions on preserved human and sheep brains and/or models.

36. Identify the 12 pairs of cranial nerves on preserved sheep brains and/or models.

37. Identify the regions of the spinal cord and spinal nerves on preserved specimens and/or models.

38. Identify features of microscopic nerve anatomy using Kodachrome and/or microscope slides.

39. Identify the parts of the eye using sheep eyes or eye models.

40. Identify the parts of the ear using models.

Course Core Outline

TOPIC

I. Introduction and body organization
   - A. Structural levels
   - B. Body cavities
   - C. Directional terminology
   - D. Body planes
   - E. Homeostasis and its implications

II. Chemistry
   - A. Terminology
   - B. Atomic structure
   - C. Chemical bonding
   - D. Chemical nature of metabolism
   - E. Inorganic molecules
   - F. Organic biomolecules

III. Cytology (cells)
   - A. Cellular structure - generalizations.
   - B. Cell membrane-structure and implications
   - C. Cytoplasmic organelles
   - D. Nucleus-structure and implications
   - E. Cell division-karyokinesis and cytokinesis

IV. Histology (tissues)
   - A. Tissue Structure - generalizations
   - B. Epithelial tissues
   - C. Connective tissues
   - D. Muscle tissues
   - E. Nervous tissue

V. Membranes, integrant and glands
   - A. Membrane structure - generalizations
   - B. Mucous membranes
   - C. Serous membranes

D. Synovial membranes
E. Cutaneous membranes (integument)
F. Glands

VI. Skeletal system
A. Function - generalization
B. Types - macroscopic and microscopic structure
C. Formation, growth and repair
D. Bone terminology - markings and processes
E. Skeletal divisions - axial and appendicular
F. Inconsistent bones
G. Sexual differences
H. Age changes
I. Articulation (joints)
J. Age changes and diseases of joints

VII. Muscular system
A. Function - generalizations
B. Macroscopic, microscopic and molecular structure
C. Physiology of contraction
D. Connective Tissue Components
E. Innervation
F. Age changes
G. Types of contractions
H. Contractions - generalizations
I. Terminology

VIII. Nervous System
A. Microscopic and macroscopic structure
B. Nerve impulse conduction
1. Resting potential
2. Action potential
C. Synaptic conduction
D. Neurotransmitters (andrenergic and cholinergic)
E. Subdivisions of the nervous system (SNS, CNS, PNS, ANS)
F. Central nervous system (brain and spinal cord)
G. Peripheral nervous system (cranial & spinal nerves & plexuses)
H. Autonomic nervous system (sympathetic & parasympathetic div.)

Lab Topic

1. Orientation and Use of Microscope
2. Epithelial tissues
3. Connective tissues
4. Muscle tissues and mitosis
5. Skeleton (axial) - skull bones
6. Skeleton - finish axial
7. Appendicular skeleton
8. Skin the cat & superficial chest muscles

9. Neck, abdominal & deep chest muscles

10. Muscles of the upper back, shoulder and upper arm

11. Muscles of the hip and hind leg

12. Brain - human and sheep

13. Spinal cord and spinal nerves
    Cranial nerves
    Microscopic nerve anatomy

14. Eye - sheep eye and eye model
    Ear - ear model

Special Requirements

None.

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